

When considering flood control during the engineering phase , several critical actions must be taken to ensure the structure is well-prepared for potential flooding. Here's a list of these actions:

**1. Site Analysis and Selection:**

- ✚ Conduct a comprehensive flood risk assessment for potential sites.
- ✚ Preferentially select sites with lower flood risk where possible.

**2. Flood Zone Determination:**

- ✚ Identify the flood zone classification of the site based on local or national flood maps.
- ✚ Understand the implications of this classification for building design and insurance requirements.

**3. Elevation and Foundation Design:**

- ✚ Elevate the building above the base flood elevation (BFE) as defined by local regulations.
- ✚ Design foundations to withstand flood forces, including buoyancy, rapid water rise and fall, and erosion.

**4. Water-Resistant Materials:**

- ✚ Use building materials that are resistant to water damage for below-BFE construction.
- ✚ Implement treatments to make materials more resistant to water.

**5. Floodproofing Critical Systems:**

- ✚ Elevate or encapsulate critical systems such as electrical panels, generators, and HVAC systems above the BFE.
- ✚ Implement floodproof barriers around essential equipment.

**6. Drainage Planning:**

- ✚ Design effective site drainage systems to manage surface water runoff.
- ✚ Incorporate solutions like French drains, sump pumps, and backflow preventers.

**7. Landscaping and Permeable Surfaces:**

- ✚ Use landscaping to facilitate natural drainage and reduce runoff.
- ✚ Implement permeable paving materials to allow water infiltration.

**8. Flood Barriers and Sealing:**

- ✚ Incorporate temporary or permanent flood barriers in the building design.
- ✚ Seal basements and lower levels to prevent water ingress.

**9. Emergency Power and Fuel Systems:**

- ✚ Ensure backup power systems are in place and protected from flood damage.
- ✚ Store fuel for generators in a flood-safe location.

**10. Building Code Compliance:**

- ✚ Adhere strictly to local building codes related to flood mitigation.
- ✚ Consider going beyond minimum requirements for added safety.

**11. Insurance Considerations:**

- ✚ Understand and plan for flood insurance requirements.
- ✚ Consider additional coverage for areas not typically included in standard policies.

**12. Community Infrastructure and Services:**

- ✚ Evaluate the adequacy of local infrastructure like stormwater systems and emergency services in the event of flooding.

**13. Contingency Planning:**

- ✚ Develop a contingency plan for construction delays due to flooding.
- ✚ Plan for alternative access routes and methods during flood events.